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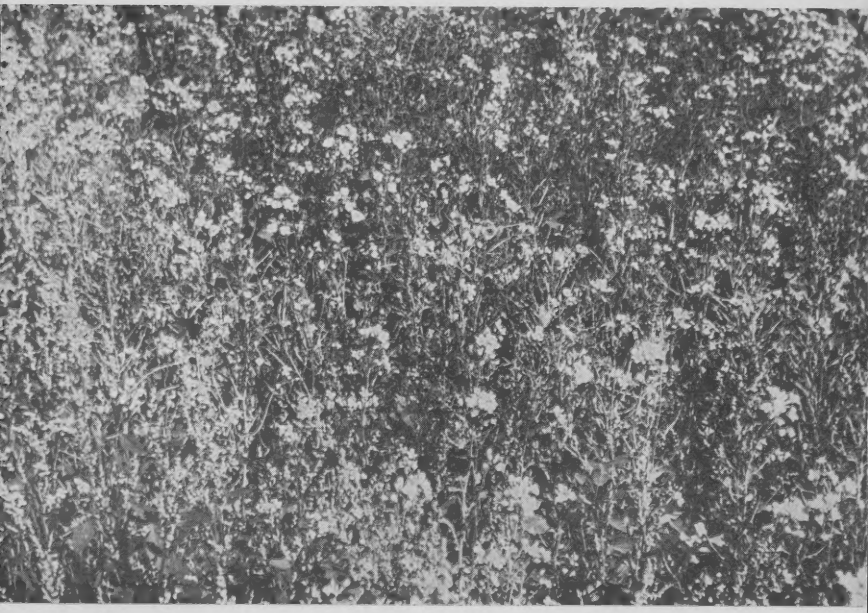

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Growing Rape for Seed in the Prairie Provinces

By F. J. GREANEY*

Introduction

In recent years, the growing of rape for seed has become an important source of income for many farmers in the Prairie Provinces. From a very small beginning in 1942, the production of rapeseed has now reached the point where rape is the fifth most important cash crop in Western Canada.

Since 1954, more and more farmers have turned to the production of rapeseed as an alternative to cereal crops. In 1957 the acreage sown to rape in the Prairie Provinces was 647,500 acres compared with 351,900 acres in 1956. By provinces, the acreages devoted to this crop in 1957 (with the 1956 acreages in brackets) were as follows: Manitoba, 27,500 (29,100); Saskatchewan, 535,000 (297,000); and Alberta, 85,000 (25,800) acres. Present conditions indicate that the growing of rape for seed will continue to provide a cash crop for many farmers in the more moist northern areas of the Prairie Provinces, particularly in northern Saskatchewan.

Rape is an oil-seed crop. The oil content of rapeseed is about 40 per cent by weight. Owing to the introduction of improved refinery processes rapeseed oil is now widely used for the manufacture of lubricants for marine engines, and other special mechanisms. It is also used in the soap and allied industries, and to an increasing extent in the manufacture of shortening, margarine, salad oil, and other edible products. An increased demand has developed in recent years for rapeseed oilmeal. This important by-product of rapeseed is used extensively as a supplement in livestock and poultry feeds.

Although rape has attained considerable importance as a field crop in Western Canada in recent years, it must still be considered a "special" crop. As with other specialized crops, one of the risks in growing rape is the uncertainty associated with marketing the crop. Although the world demand for rapeseed oil has increased appreciably in recent years, there is by no means an unlimited market for it. As an oil-seed crop rape has to compete with well established products such as the oils

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from peanuts, soybeans, corn and cotton. In the manufacture of edible products the oils of these crops hold a preferred position over rapeseed oil. If this continues and the oils from soybeans, peanuts, cotton and corn become more plentiful and lower priced, there is likely to be a serious decline in the present demand for rapeseed oil.

There is always the possibility therefore that rapeseed production in the Prairie Provinces may exceed the market demand. If this should happen western farmers would find themselves faced with another surplus problem. Besides, as farmers know only too well, there is a certain increased risk in growing any new crop. For these reasons it is important that, before devoting too much land to rapeseed production, farmers should not only seek all the information available concerning the growing of rape, but become completely familiar with the available market outlets.

The main purpose of this circular is to provide grain buyers and farmers with concise, practical information on the growing of rape for seed in the Prairie Provinces.

Adaptation or Soil Preference

Experience has shown that rape is particularly well adapted to the more moist northern areas of the Prairie Provinces. Although it grows fairly well on most types of soil, rape is best suited to clay or clay-loam soils. Rape is less drought resistant than cereal crops, and is therefore not a safe crop to grow on sandy loams or dry, sandy soils.

Farm experience has indicated that the seed yields of rape vary in direct proportion to the supply of soil moisture. Rape is definitely a moisture-loving crop. When grown in the open prairies, under dry conditions, rapeseed yields have been as low as 100 pounds per acre. On the other hand, in years of normal rainfall, yields of from 1,000 to 1,500 pounds of rapeseed per acre can be expected, if rape is grown on summerfallowed clay or clay-loam soils in the northern crop districts of the Prairie Provinces.

Growing the Crop

VARIETIES

Growing the right variety is exceedingly important in the successful production of rapeseed. Farmers should choose the variety of rape which will mature under the soil and climatic conditions of their par-

ticular district, and produce a satisfactory yield of high quality seed. In general, the farther north in the prairies rape is to be grown, the earlier the variety must be.

At present, two distinct types of rape are grown in Western Canada — The Argentine type and the Polish type. These types are often referred to as varieties.

ARGENTINE TYPE. Because of its yielding ability, Argentine rape is the best type to grow in most areas of the Prairie Provinces. It requires about the same time to mature as wheat. Where rape can be sown early (before May 15) the variety Golden, which is a new high-yielding variety of the Argentine type, is recommended as first choice. Under conditions that would result in 30 bushels of wheat per acre it can be expected that varieties of the Argentine type, such as Golden, will yield about 1,500 pounds of seed per acre. The seed of Golden is high in oil content.

POLISH TYPE. So far, no named varieties of the Polish type of rape have become available in Canada. The Polish type that is grown in the Prairie Provinces is therefore often referred to as the Polish variety.

The Polish type is roughly two to three weeks earlier in maturing than the Argentine type. Consequently this type is recommended for districts where the frost-free period is short, and where it is often necessary to delay seeding until late May or early June. Some growers claim that Polish does not shatter as readily as Argentine. Experience has shown that the Polish type will yield only 60 to 70 per cent as much seed as the Argentine type.

SEED

Only rapeseed that is sound, strong in germination, and free of weed seeds, should be used. It is important that the seed of rape be as free as possible of mustard seed. The use of rapeseed containing mustard not only contributes to the pollution of the soil with this weed but contaminates the growing rape crop and hence the seed produced from it. Rapeseed that contains as little as 1 per cent of mustard seed is degraded, and suffers a serious price discount. In purchasing rapeseed, it is advisable for farmers to make sure that it is being offered for sale under a mustard-free certificate as issued by the Plant Products Division, Production Service, Canada Department of Agriculture.

SEED TREATMENT

Recommendations concerning the treatment of the seed of rape are as follows. If the seed is plump, free of disease, and germinates strongly (90 per cent or higher), treatment may not be necessary. However, light-weight seed with low germination (below 90 per cent), or seed that has come from a field that was known to be infected with stem blight or with the leaf (black spot) disease of rape, should be treated with one of the following chemicals: Agrox, Arasan, Captan, Ceresan M, or Orthocide at the rate of 1 ounce of the chemical per 100 pounds of rapeseed; or with Thiram at the rate of 3 ounces per 100 pounds of seed. Rapeseed should be treated at least 24 hours before seeding. In treating rapeseed the directions of the chemical manufacturer should be followed closely.

SEEDBED PREPARATION

No crop responds more to good seedbed preparation than rape. A firm, moist seedbed is desired in order that the seed may be sown at a uniform, shallow depth. For good seed germination, and in the early growth stages, rape needs moisture. Consequently it is not advisable to sow rapeseed in loose, lumpy, open, dry soil. As the small plants are rather easily damaged by drifting soil it is important that the seeded land be left in a condition that will minimize the danger of wind erosion.

SEEDING THE CROP

The grain drill is the most satisfactory implement for sowing rapeseed. Generally, rape is sown in drills 6 or 7 inches apart. It should be sown to a uniform depth of about 1 inch, and definitely not deeper than 1½ inches. The crop may also be sown with a pony press drill, or even with a discer with seed attachment. When these implements are used, however, care should be taken to prevent seeding too deeply. Packing after seeding is recommended.

TIME OF SEEDING. As rape is susceptible to spring frost damage very early seeding should be avoided. As it requires about 95 to 100 days to mature, it has been found that the best time to sow the Argentine type of rape is about May 10 to May 20. The Polish type, on the other hand, which requires about 85 days to mature, may be sown as late as June 10. It should be remembered, however, that the earlier rape is sown the higher the seed yield is likely to be.

RATE OF SEEDING. Under favorable soil moisture conditions the rate of seeding should be about 8 pounds per acre. If the land is on the dry side it is advisable to increase the seeding rate to 10 pounds per acre. If difficulty is found in adjusting the seed drill to sow such

low rates, a grass-seed attachment that will put the seed in the drill runs may be used. Another method that is used by some rape growers is to mix the seed with cracked grain in the proportion of about 1 pound of cracked wheat to each pound of seed.

An alternative seeding method may be used where fertilizers are applied. In this case the rapeseed is mixed with the fertilizer and then sown from the fertilizer attachment of the drill. If the fertilizer rate used is 30 pounds per acre and the desired seeding rate of rapeseed is 10 pounds per acre, the fertilizer and seed should be mixed in this proportion and the fertilizer attachment set to deliver 40 pounds of fertilizer per acre. On no account should the seed be mixed with the fertilizer in advance of sowing for if such a mixture is allowed to stand for even a few days, germination of the seed may be seriously impaired.

Rapeseed may also be sown by broadcasting the seed with a Cyclone seeder or similar equipment followed by harrowing or a light discing.

USE OF FERTILIZER

In areas where phosphate fertilizers are recommended for wheat or other cereal crops, it can be expected that applying such fertilizers to rape, at the rates recommended for wheat, will give profitable returns. Experience with fertilizers on your own farm is your best guide.

WEED CONTROL

Rape is a poor weed fighter. The young seedlings are very sensitive to weed competition and harrowing a crop of rape after it has come through the soil is a dangerous practice. It is important therefore that good, high-germinating seed be used in order that a thick, strong, uniform stand of young rape plants be secured which will cover the soil surface, and hence shade-out or smother weed growth. As there is no selective weed-killing chemical that will control weeds in a crop of rape, it is most essential that rape be sown on land that is free, or relatively free of weeds.

WILD OATS. Rape does not compete successfully with wild oats. If land infested with wild oats has to be used, it should be cultivated until late May or early June and then seeded with the Polish type of rape.

WILD MUSTARD. Land used for rape should be free of mustard as its presence in this special oil-seed crop presents serious marketing problems. As mentioned above, the occurrence of as little as 1 per cent of mustard seed in rapeseed is likely to result in a serious price discount, the amount of which will increase in direct proportion to the mustard

seed content. Rapeseed that contains over 50 per cent of mustard is usually rejected.

The importance of producing rapeseed that is free, or relatively free, of mustard cannot be over-emphasized. Where only a light, scattered infestation of mustard plants occurs in a rape crop it may be advisable for a farmer to rogue the field. In any case a careful examination of a field of rape for mustard plants is one way of finding out how much objectionable mustard seed is likely to be present in the threshed crop. A few of the more important points of contrast between plants of wild mustard and rape which should help any observant farmer or grain buyer to identify wild mustard plants in a growing crop of rape are listed below.

Plant	Plant Characteristics				
	Stem and Leaves	Leaf Attachment	Seed Pod	Color of Flowers	Color of Plants
Rape	No ~~Covered with~~ hairs	Base of leaf clasped around stem	Long beak	Pale yellow	Distinctly blue-green
Mustard	Covered with ~~No~~ hairs	Short stalk, leaf-base not clasped around stem	Short beak	Dark yellow	Distinctly green

Rape is very susceptible to 2,4-D, MCP, and similar herbicides. A crop of rape cannot, therefore, be treated with these chemicals for weed control. It is essential therefore that other methods of controlling weeds be practised.

PLANT DISEASE CONTROL

So far, plant diseases have not been a serious problem in the production of rapeseed in the Prairie Provinces. However, certain diseases are known to attack rape. Three diseases, namely, Downy Mildew, Basal Stem Blight, and Black (Leaf) Spot are capable of causing considerable damage to rape. Two of these — Downy Mildew and Basal Stem Blight can be prevented by using seed from a disease-free crop, and by crop rotation and weed control. Black Spot can be controlled, to some extent at least, by seed treatment.

There is every possibility, of course, that in the years ahead any or all of the diseases that attack rape may increase in importance in the Prairie Provinces. To avoid any serious disease build-up rape should not be grown year after year on the same land. Rape should not, in fact, be grown on the same soil more than once in every 3 or 4 years.

Rape growers should watch their crops closely for the occurrence of destructive plant diseases and report their presence at once to their local Agricultural Representative, or nearest University or Laboratory of Plant Pathology.

INSECT CONTROL

The following insect pests are likely to attack and damage rape in the Prairie Provinces — Bertha Armyworm, Turnip Beetle, Flea Beetle, and Beet Webworm. Rape growers should watch their fields closely for these and other insect pests and report their occurrence at once to their local Agricultural Representative, provincial University, or nearest Entomological Laboratory. From these sources farmers can quickly obtain reliable advice and recommendations concerning the most effective and practical methods of controlling insect pests.

Harvesting and Threshing the Crop

No special equipment is necessary to harvest a crop of rape. It can be harvested with the regular grain-harvesting equipment.

Rape is ripe when the stem and pods turn a straw color. When harvested the seeds should be dark brown in color. It is important to allow the seed to become ripe before cutting.

Most farmers find it advisable to swath rape as swathing limits losses due to shattering and may prevent or reduce frost damage. As the pods of rape shatter very readily, the crop should be swathed before it is fully mature. The best time is when the ripest pods shell quite easily.

In swathing rape it is necessary to reduce the speed of the reel to about one-half to two-thirds the usual speed. Many farmers remove one-half of the bats on the reel to avoid shattering losses. Although a rape crop is easily cut it makes up a bulky, fluffy swath which can be scattered quite easily by the wind. If rape is cut fairly high, and before it becomes too ripe, the swath will tend to settle in the stubble and be anchored by it. To minimize the amount of material in the swath it is advisable to cut rape just below the lowest seed pods. Furthermore, it is best to leave the stubble as high as possible as this will permit running the combine pick-up below the swath, an operation that will not only reduce the loss of seed pods but prevent excessive shattering.

The Polish type of rape, because of its earliness and uniformity of ripening, lends itself more to straight combining than the Argentine type. Unless the crop is exceedingly late Polish rape can be satisfactorily straight-combined. Straight combining does, of course, avoid some of the difficulties associated with swathing.

Owing to the ease with which rape can be threshed it is necessary to reduce cylinder speed to about one-half the normal speed used for threshing wheat. Other parts of the combine should, however, be operated at normal speeds. The concaves should be adjusted to avoid severe breaking of stem and pods. If the rape crop is a heavy one, the speed of travel of the combine should be slow enough to allow sufficient time for the proper separation of seed and straw. Rape threshes best when it is not too dry. In fact, rape threshes well under conditions that make wheat too tough to thresh satisfactorily.

Storing and Marketing Rapeseed

STORING

The storage and handling problems associated with rape are generally similar to those of flax. The seed of rape is round, small, and heavy and therefore runs freely. Consequently for bulk storage of rapeseed tight bins are necessary. If these cannot be provided, bagging of the seed is recommended.

The moisture content for the safe storage of rapeseed is 10.5 per cent. Seed having a higher moisture content than 10.5 per cent is discounted in price. The higher the moisture content — the lower the price. If damp or tough seed has to be stored it should be placed in shallow layers and checked frequently for heating. If there are any signs of heating, the seed should be turned or moved to another bin.

As heavy discounts are made with respect to dockage, every effort should be made in growing and harvesting rapeseed to keep dockage at a minimum level. The seed of rape is not difficult to clean. An effective cleaning job can be done with a good fanning mill.

MARKETING

Today, the main channels of disposal of rapeseed are elevator companies and private marketing organizations, and most of the seed is grown under contract.

Regardless of the fact that in recent years there has been a relatively good domestic and export demand for rapeseed it must be realized that the market for oil seeds is a highly competitive one, and that the demand for rapeseed is by no means unlimited. We therefore urge prospective producers of rapeseed to become completely familiar with the market outlets before they decide to devote too much land to rapeseed production.

Limitation of space prohibits a detailed discussion in this circular of all the problems associated with the growing of rape for seed in the Prairie Provinces. Farmers requiring more detailed information on this "special" crop should contact their local Agricultural Representative or nearest University, or write directly to the Field Crops Branch of their provincial department of agriculture. General and reliable information on storing, grading and marketing rapeseed can, and should be obtained from local elevator agents.

LIST OF MAJOR BULLETINS AND CIRCULARS

Published by

LINE ELEVATORS FARM SERVICE

Bulletins

No. 2 An Illustrated Guide to Prairie Weeds (Reprinted January, 1955)
By K. W. Neatby. October, 1941.

No. 3 Water Erosion of Soils in the Prairie Provinces and its Control.
By K. W. Neatby. March, 1944.

No. 4 Ornamental Shrubs and Small Trees for the Canadian Prairies.
By S. W. Edgecombe. April, 1944.

No. 6 Growing Small Fruits in the Prairie Provinces. ...(Revised 1950)
By W. R. Leslie. March, 1945.

No. 8 Field Crop Insects and Their Control in the Prairie Provinces.
By A. V. Mitchener. June, 1956.

Circulars

No. 11 Wild Oat Control by Cultural Methods. (Revised).
By H. J. Mather and F. J. Greaney. May, 1952.

No. 12 Couch Grass Control by Cultural Methods. (Revised).
By H. J. Mather and F. J. Greaney. January, 1954.

No. 13 Canada Thistle and Perennial Sow Thistle Control. (Revised).
By H. J. Mather. April, 1956.

No. 14 Trash Cover Prevents Soil Erosion. (Revised).
By H. J. Mather. May, 1953.

No. 16 Smut Control in Wheat.
By F. J. Greaney. January, 1954.

No. 17. Smut Control in Oats.
By F. J. Greaney. January, 1954.

No. 18 Smut Control in Barley.
By F. J. Greaney. January, 1954.

No. 19 Protect Prairie Soils.
By H. J. Mather. August, 1955.

Wall Posters: Weed Plant Pictures. Weed Seed Pictures.

(The above publications distributed free of charge to farmers, 4-H Clubs, rural schools and Agricultural Schools and Colleges in the Prairie Provinces.)

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WINNIPEG, MANITOBA

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